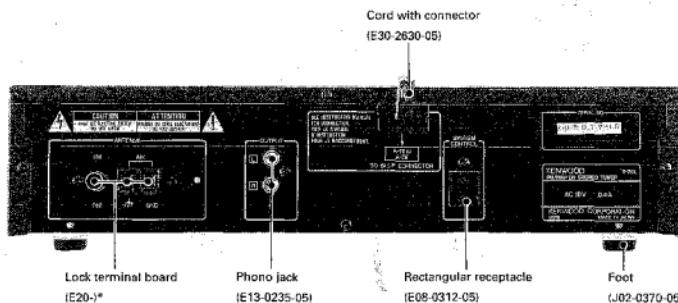
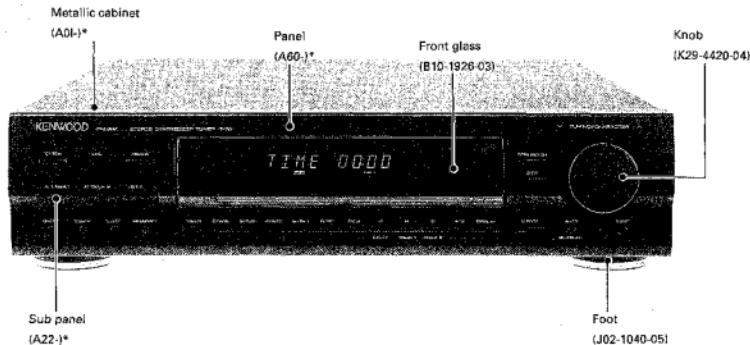


FM/MW/LW STEREO SYNTHESIZER TUNER

# T-76/76L SERVICE MANUAL

KENWOOD

©1992-7 PRINTED IN JAPAN  
B51-4610-00(J)2385



T-76 and T-76L don't have a power supply transformer.  
Use A-56,A-76 or RM-90PS power supply to supply power  
, if neither is available,adjust to operate as instructed on  
page 8.

When turning the power on, short the connector pin of CN201 (X05-B/2).

\*Refer to parts List on page 25.  
Photo is T-76L

# T-76/76L

## CONTENTS/ACCESSORIES

### Contents

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	JAPAN MADE	SINGAPORE MADE	FRANCE MADE
T-76	X05-4320-20(M) X05-4320-7100	X05-4330-20(M) X05-4330-71(X)	—
T-76L	X05-4322-71(T,E)	X05-4332-71(T,E)	X05-4322-72(E)

The T-76 and T-76L are made in different countries. However, their circuits are identical.

### Accessories

LOOP ANTENNA  
(T90-0153-05): FRANCE MADE



LOOP ANTENNA  
(T90-0173-05): JAPAN MADE  
(T90-0174-06): SINGAPORE MADE



T TYPE ANTENNA  
(T90-0176-05): JAPAN MADE  
(T90-0176-05): FRANCE MADE  
(T90-0175-05): SINGAPORE MADE



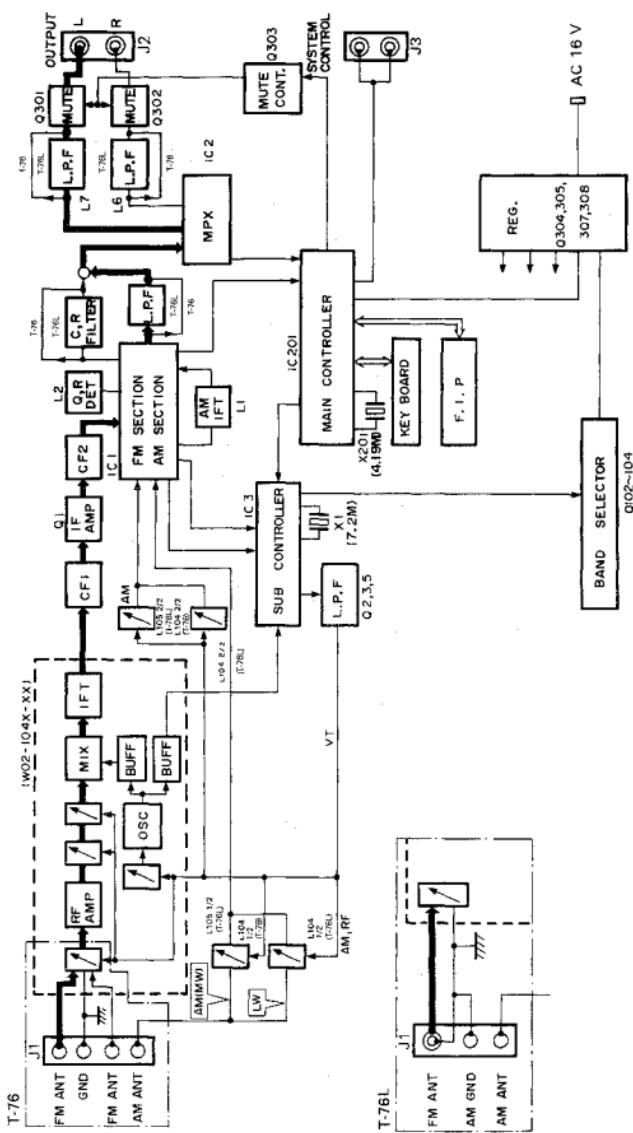
ANTENNA ADAPTER  
(T90-0185-05):(T-76L ONLY)



ANTENNA HOLDER  
(J19-2815-04)



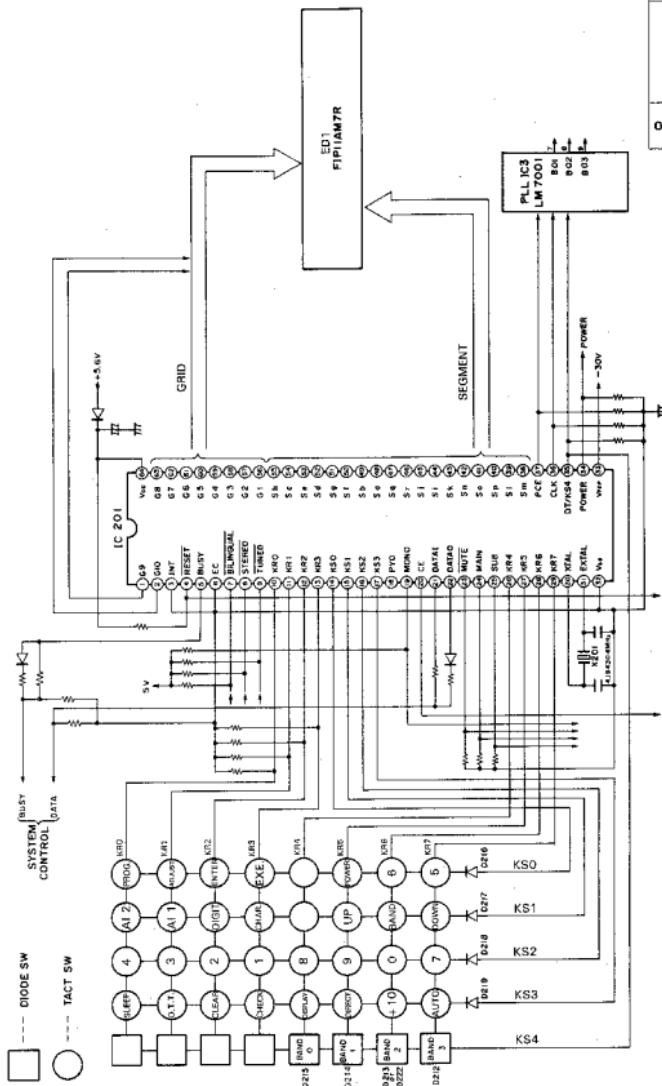
## BLOCK DIAGRAM



# T-76/76L

## CIRCUIT DESCRIPTION

Blockdiagram of surrounding microprocessor (CXP50216-104S: IC201)



BAND SELECT			
DEFINITION	BAND	3pin	3pin
J	FM	L	H
	AM	L	L
	VHF	H	H
	VHF	H	H
	UHF	H	L
Other	FM	H	H
	AM	H	L
	LW	L	H

## CIRCUIT DESCRIPTION

## Pin functions

Pin No.	Pin name	I/O	Name	Operation description
1, 2	T1, T0	O	G9, G10	FL grid output 9G, 10G
3	INT	I		No use (GND)
4	RST	I	RESET	Reset input
5	ADM/PB3	I/O	BUSY	System control BUSY input/output
6	EC	I		No use (GND)
7	SC/PX0	I	BIL	BILINGUAL
8	SO/PX1	I	STEREO	Stereo signal input
9	SI/PX2	I	TUNED	Tuning signal input
10~13	PF0~PF3	I	KR0~KR3	Key return input
14~17	PE0~PE3	O	KS0~KS3	Key scan output
18	PY0	O		No use (OPEN)
19	PWM/PY1	O	MONO	Forced MONO output
20	WP/PY2	I	CE	AC OFF detection input
21	RMC/PY3	I	DATA!	System control DATA input
22	PD0	O	DATA0	System control DATA output
23	PD1	O	MUTE	Line mute
24	PD2	O	MAIN	No use
25	PD3	O	SUB	No use
26~29	PC0~PC3	I	KR4~KR7	Key return input
30	XTAL			Quartz oscillator 4.194304MHz
31	EXTAL			Quartz oscillator 4.194304MHz
32	Vas			GND pin
33	Vfop			-30 V
34	PH0/S0	O	POWER	POWER ON/OFF control
35	PH1/S1	O	DT/KS4	PLL DATA output
36	PH2/S2	O	CLK	PLL CLOCK output
37	PH3/S3	O	PCE	PLL CE output
38~55	PG0/S4~S23/T8	O	Sm~Sh	FL segment output (m, l, p, o, n, k, i, j, r, q, a, b, f, g, d, e, c, h)
56~63	S22/T9~T2	O	G1~G8	FL grid output 1G~8G
64	Vdd			+5 V (Power supply)

# T-76/76L

## CIRCUIT DESCRIPTION

### Test mode

#### (1) Method of setting

While pressing the DOWN key, turn AC ON.

#### (2) Contents

Power ON

FLL all lit

Test frequency setting (Table 1)

#### (3) Method of canceling

Clearing the FL all lit state is performed by numeral key, BAND key, UP/DOWN key or POWER key.

### Initial status setting (reset)

#### (1) Method

While pressing the ENTER key, turn AC ON.

#### (2) Contents

The all memory is cleared and the initial status is fully restored. At this time, however, test frequency is newly memorized in the preset memory. (Table 1)

Destination Preset channel	T-76				T-76L	
	J TYPE		M, X TYPE		T, E TYPE	
01ch	FM	83.5 MHz	FM	98.0 MHz	FM	98.0 MHz
02ch	FM	90.0 MHz	FM	108.0 MHz	FM	108.0 MHz
03ch	AM	630 kHz	AM	630 kHz	AM	630 kHz
04ch	AM	990 kHz	AM	990 kHz	AM	990 kHz
05ch	AM	1440 kHz	AM	1440 kHz	AM	1440 kHz
06ch	AM	1602 kHz	AM (AM 1610 kHz)	1602 kHz	AM	1602 kHz
07ch	TV	3 ch	FM	87.5 MHz	LW	162 kHz
08ch	TV	8 ch	FM	87.5 MHz	LW	216 kHz
09ch	TV	35 ch	FM	87.5 MHz	LW	270 kHz
10ch	FM	89.1 MHz	FM	89.1 MHz	FM	89.1 MHz
11ch	TV	1 ch	FM	87.5 MHz	LW	281 kHz
12ch	TV	3 ch	FM	87.5 MHz	FM	87.5 MHz
13ch	TV	4 ch	FM	87.5 MHz	FM	87.5 MHz
14ch	TV	8 ch	FM	87.5 MHz	FM	87.5 MHz
15ch	TV	12 ch	FM	87.5 MHz	FM	87.5 MHz
16ch	TV	13 ch	FM	87.5 MHz	FM	87.5 MHz
17ch	TV	35 ch	FM	87.5 MHz	FM	87.5 MHz
18ch	TV	62 ch	FM	87.5 MHz	FM	87.5 MHz
19ch	FM	76.0 MHz	FM	87.5 MHz	FM	87.5 MHz
20ch ~ 30ch	FM	76.0 MHz	FM	87.5 MHz	FM	87.5 MHz

(Table 1)

### Conditions by destination

Desti- nation type	Destination switches				Band	Receiving frequency range	Inter-channel space	Intermediate frequency	PLL reference frequency	
	B3	B2	B1	B0						
T-76	J	0	0	0	0	FM	76.0 ~ 90.0 MHz	100 kHz	-10.75 MHz	25 kHz
						AM	531 ~ 1602 kHz	9 kHz	+450 kHz	9 kHz
						TV	1 ~ 62ch	6 MHz	-10.75 MHz	25 kHz
	M	1	1 or 0	1	0	FM	87.5 ~ 108.0 MHz	100 kHz or 50 kHz	+10.7 MHz	50 kHz
						AM	531 ~ 1602 kHz or 530 ~ 1610 kHz	9 kHz or 10 kHz	+450 kHz	10 kHz
	K,P	1	0	0	0	FM	87.5 ~ 108.0 MHz	100 kHz	+10.7 MHz	50 kHz
						AM	530 ~ 1700 kHz	10 kHz	+450 kHz	10 kHz
	X	1	1	0	0	FM	87.5 ~ 108.0 MHz	50 kHz	+10.7 MHz	50 kHz
						AM	531 ~ 1602 kHz	9 kHz	+450 kHz	9 kHz
T-76L	T,E	1	1	0	1	FM	87.5 ~ 108.0 MHz	50 kHz	+10.7 MHz	50 kHz
						MW	531 ~ 1602 kHz	9 kHz	+450 kHz	9 kHz
						LW	153 ~ 281 kHz	1 kHz	+450 kHz	1 kHz

T-76/76L

## ADJUSTMENT

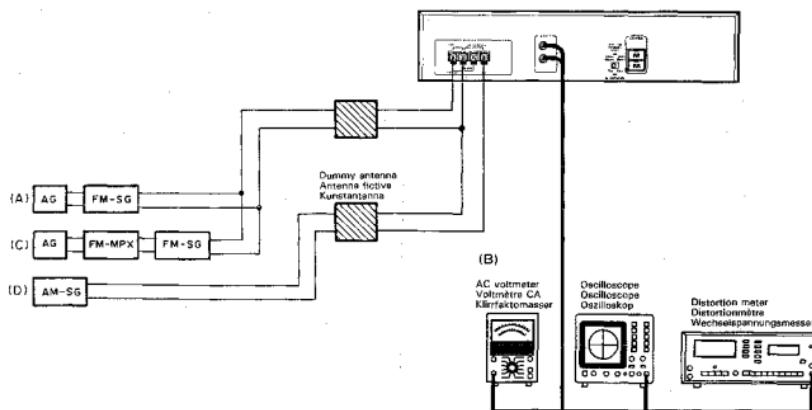
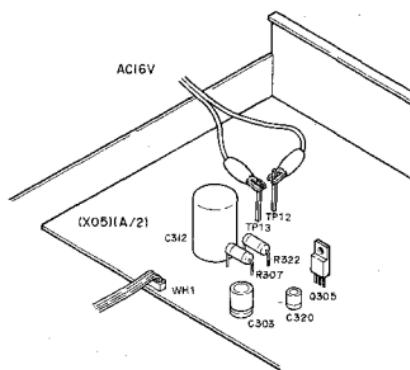
No.	ITEM	INPUT SETTINGS	OUTPUT SETTINGS	TUNER SETTINGS	ALIGNMENT POINTS	ALIGN FOR	FID.
	FM SECTION	SELECTOR: FM					
1	DISCRIMINATOR	(A) 98.0MHz 1kHz, ±75kHz dev (M,X type) 1kHz, ±40kHz dev (E,T type) 60dBu (ANT input)	Connect a DC voltmeter between TP3 and TP4. (X05-)	AUTO or MONO 98.0MHz	L2 (X05-)	BY	(a)
2	VCO	(A) 98.0MHz 0 dev 60dBu (ANT input)	Connect a frequency counter to TP5 and TP8 (GND). (X05-)	AUTO 98.0MHz	VR2 (X05-)	19.00kHz	(b)
3	DISTORTION (STEREO)	(C) 98.0MHz 1kHz, ±6.25kHz dev Pilot: ±7.5kHz dev (M,X type) 1kHz, ±40kHz dev Pilot: ±6kHz dev (E,T type) 60dBu (ANT input)	(B)	MONO 98.0MHz	IFT (X02-)	Minimum distortion	
4	SEPARATION (E,T type only)	(C) 98.0MHz 1kHz, ±40kHz dev Pilot 18kHz dev Selector: L or R 60dBu (ANT input)	(B)	AUTO 98.0MHz	VR4 (X05-)	Minimum crosstalk	
5	TUNING LEVEL	(A) 98.0MHz 1kHz, ±75kHz dev (M,X type) 1kHz, ±45kHz dev (E,T type) 14dBu(ANT input) 750 18dBu(ANT input) 3000	(B)	AUTO or MONO 98.0MHz	VR1 (X05-)	Adjust VR1 and stop at the point where EDI(TUNED) goes on.	
	AM (MW) SECTION	SELECTOR: AM(MW)					
(1)	TUNING LEVEL	(D) 1000kHz 400Hz, 30% mod 26dBu(ANT input)	(B)	1000kHz	VR3 (X05-)	Adjust VR3 and stop at the point where EDI(TUNED) goes on.	

# T-76/76L

## ADJUSTMENT

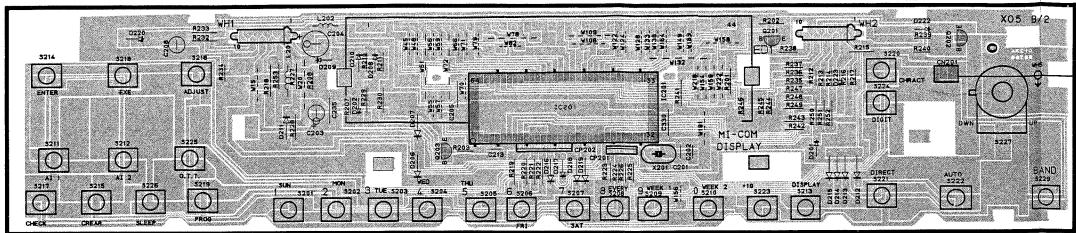
The T-76 and T-76L don't have a power transformer. Use A-56/76 or RM-90PS to supply power to the T-76/76L. If neither is available, apply AC 16 V to TP12 and TP13 of the tuner unit (X05, A/2).

**When turning the power on, short the connector pin of CN 201 (X05-B/2).**



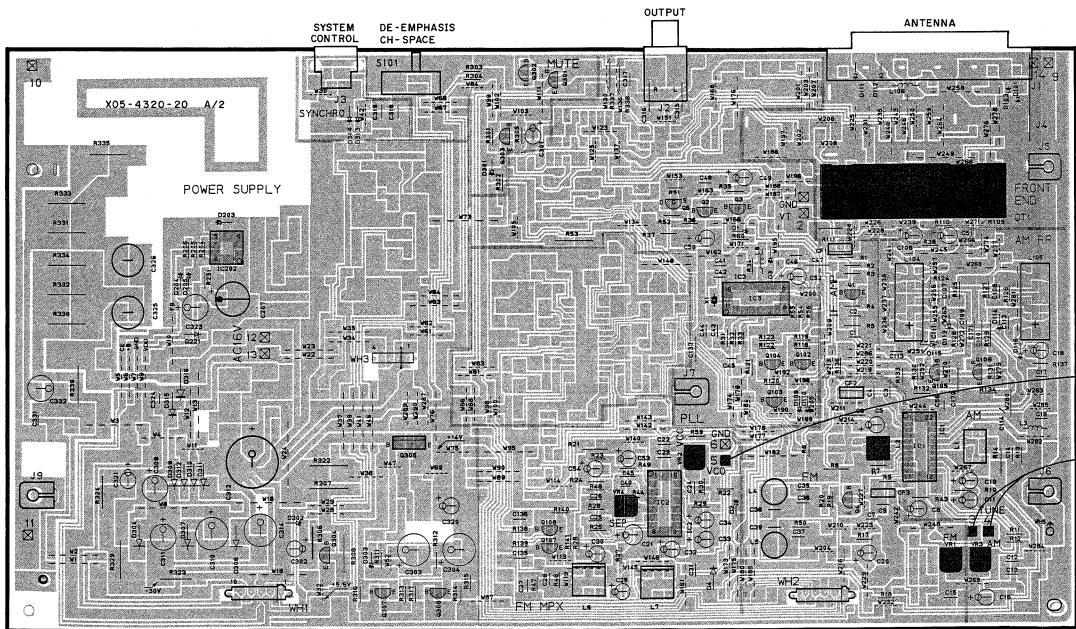
A B C D E F G H I J

1 PC BOARD (Component side view)

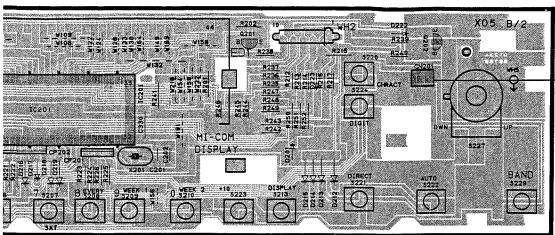


**POWER ON**

When turning the power on,  
short the connector pin of  
CN201

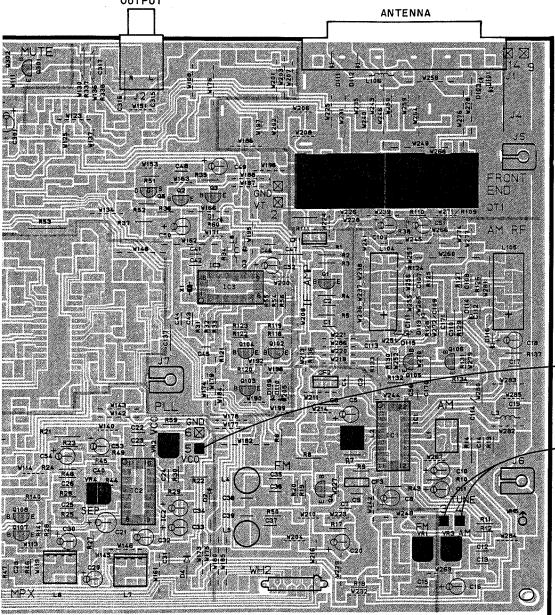


## **WIRING DIAGRAM**



## **POWER ON**

When turning the power on,  
short the connector pin of  
CN201.

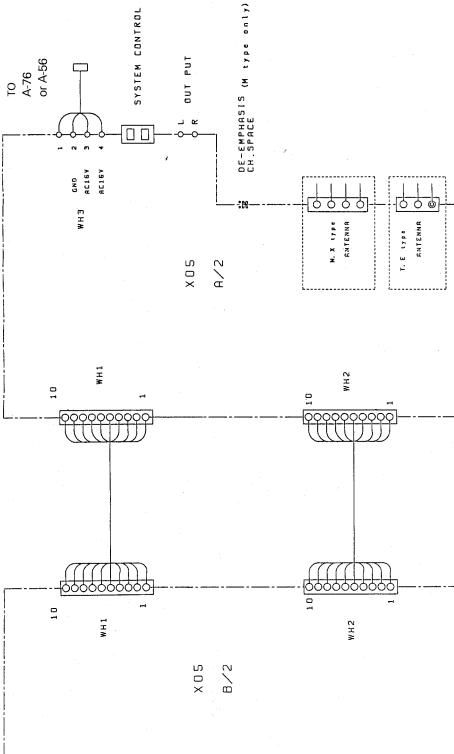


b) VCO : 19.00kHz

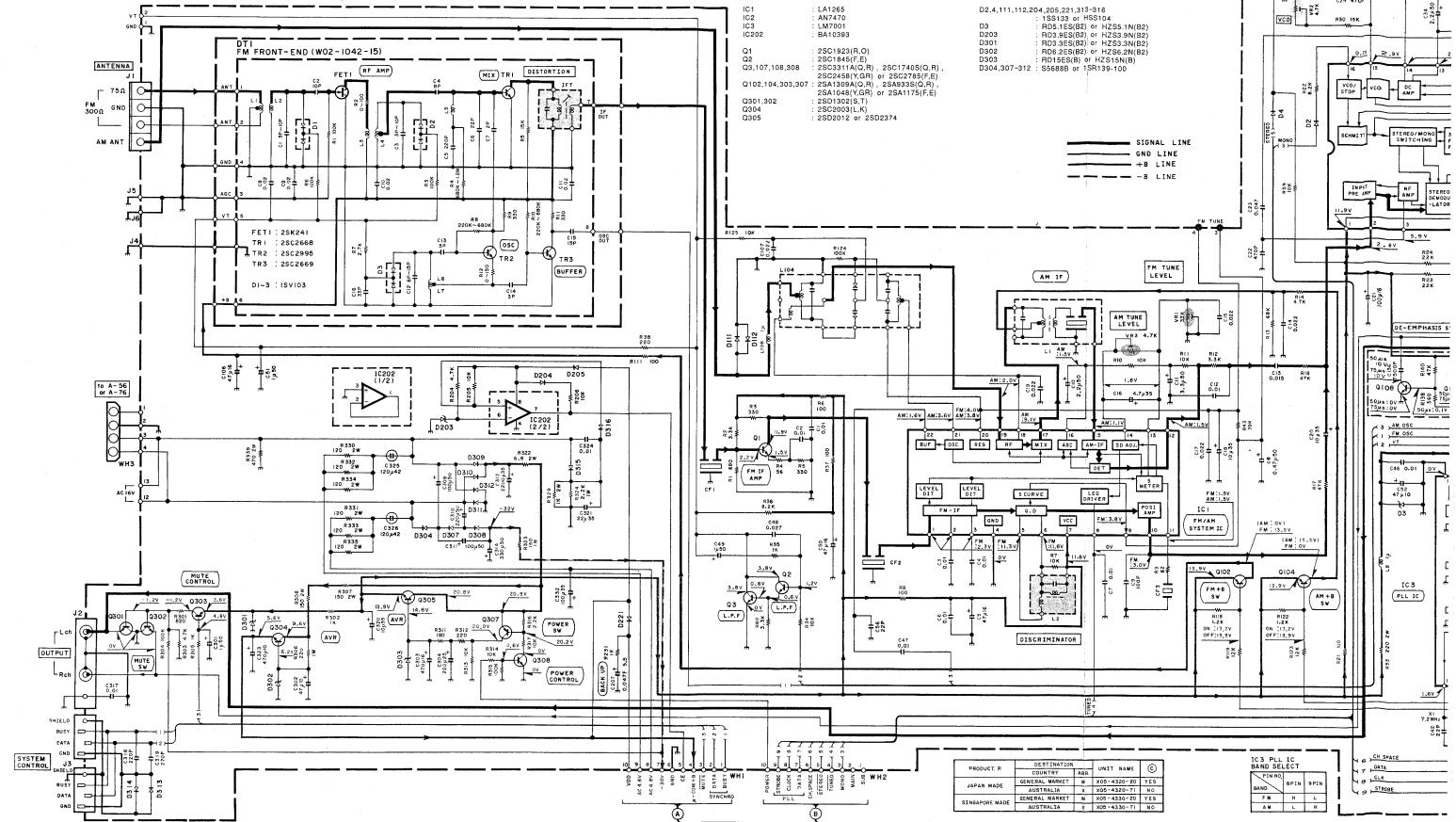
### Frequency counter

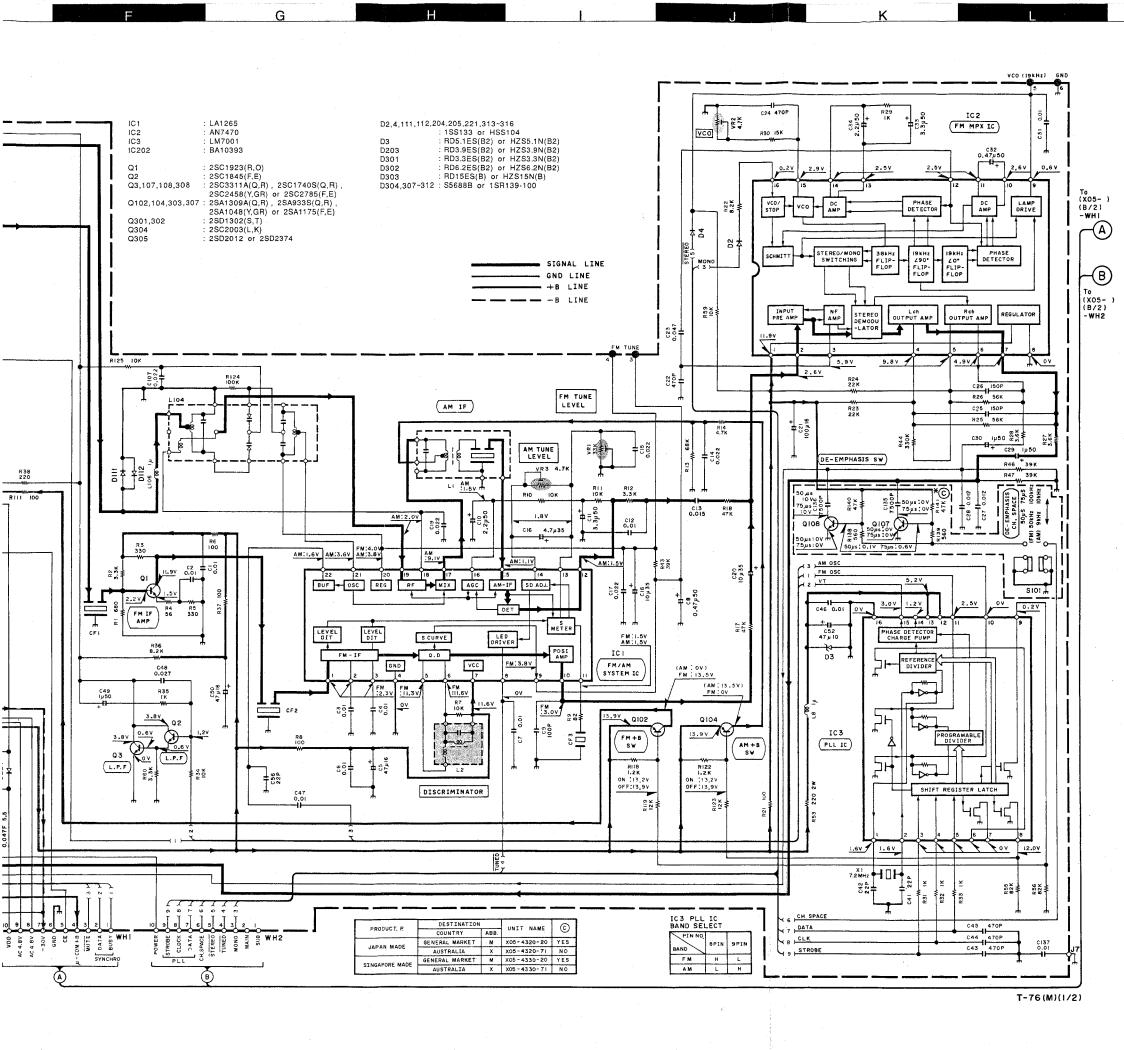
(a) Discriminator : 0V

DC voltmeter



TUNER UNIT  
(X05-4320-20) (A/2) JAPAN MADE  
(X05-4330-20) (A/2) SINGAPORE MADE





voltages are as measured with a high impedance meter. Values may vary slightly due to variations between individual instruments or/and units.

Tensions c.c. doivent être mesurées avec un voltmètre à haute impédance. Les valeurs peuvent différer légèrement du fait des variations inhérentes aux appareils et aux instruments de mesure individuels.

angegebenen Gleichspannungswerte wurden mit einem hochohmigen Spannungsmesser gemessen. Bei schwanken die Meßwerte aufgrund von Unterschieden zwischen einzelnen Instrumenten oder äten u.U. geringfügig.

**AUTION:** For continued safety, replace safety critical components only with manufacturer's recommended parts (refer to parts list).  Indicates safety critical components. To reduce the risk of electric shock, leakage-current or resistance measurements shall be carried out (exposed parts are acceptable if insulated from the supply circuit) before the appliance is returned to the customer.

When turning  
short the cor  
CN201.

T-76(M)(2/2)

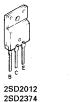
X05-4320-20(B/2)(JAPAN MADE)  
X05-4330-20(B/2)(SINGAPORE MADE)

When turning the power on, short the connector pin of 201.



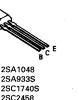
E C

C voltages are as measured with a high impedance voltmeter. Values may vary slightly due to variations between individual instruments or/and units.



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Les tensions c.c. doivent être mesurées avec un voltmètre à haute impédance. Les valeurs peuvent différer légèrement du fait des variations inhérentes aux appareils et aux instruments de mesure individuels.



6  
048  
33S  
740S  
458

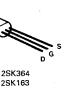
**ALERT:** For continued safety, replace safety critical components only with manufacturer's recommended parts (refer to parts list).  Indicates safety critical components. To reduce the risk of electric shock, leakage-current or resistance measurements shall be carried out (exposed parts are acceptable if insulated from the supply circuit) before the appliance is returned to the customer.



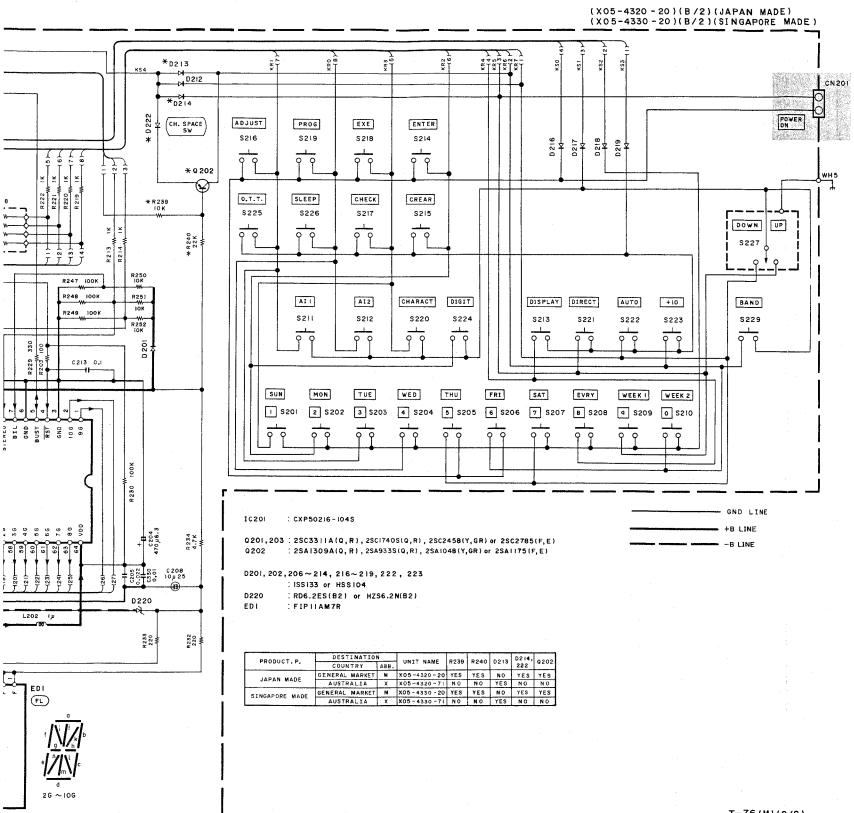
309A  
311A



0393



64  
63



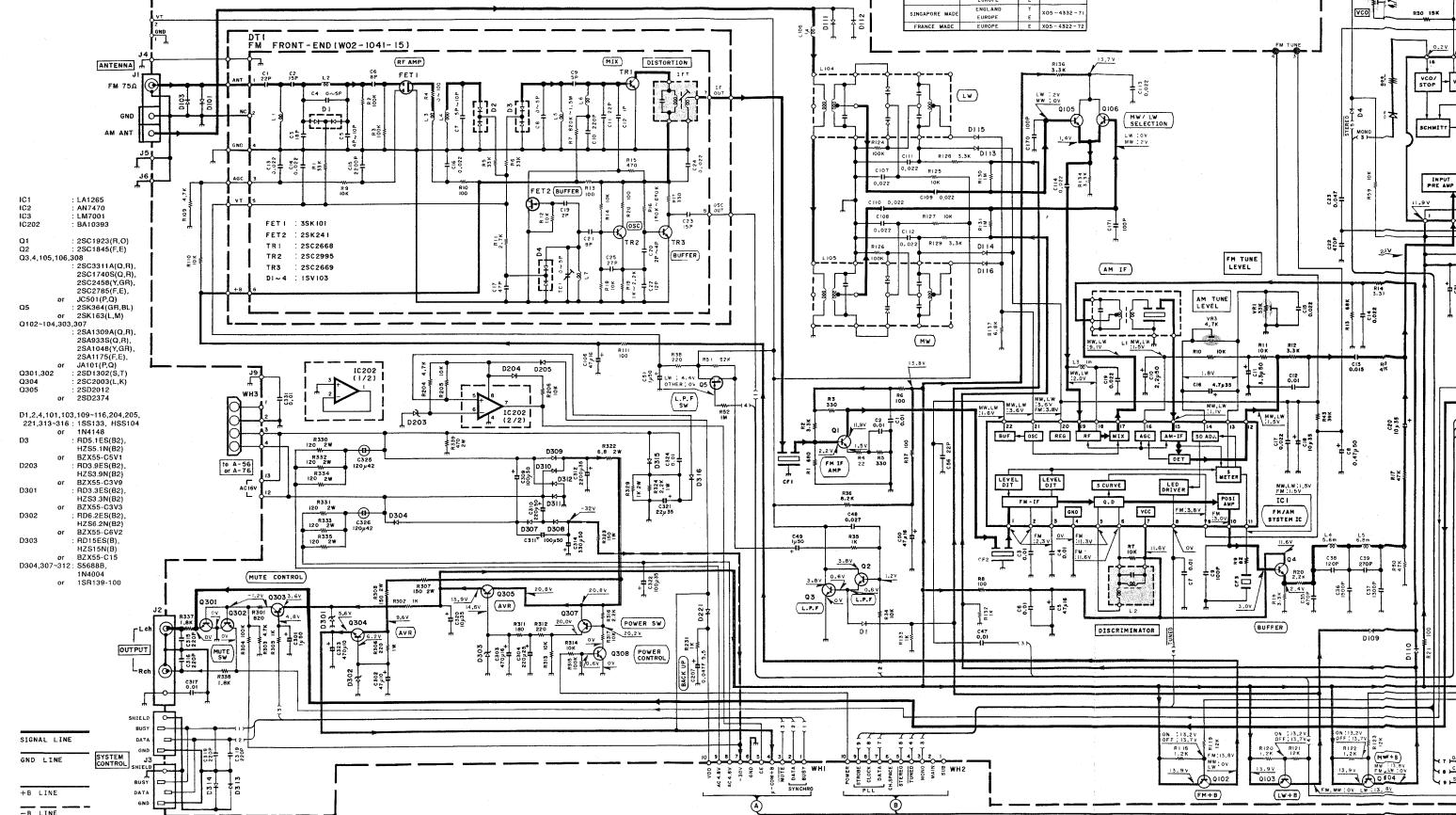
-76(M)(2)(2)

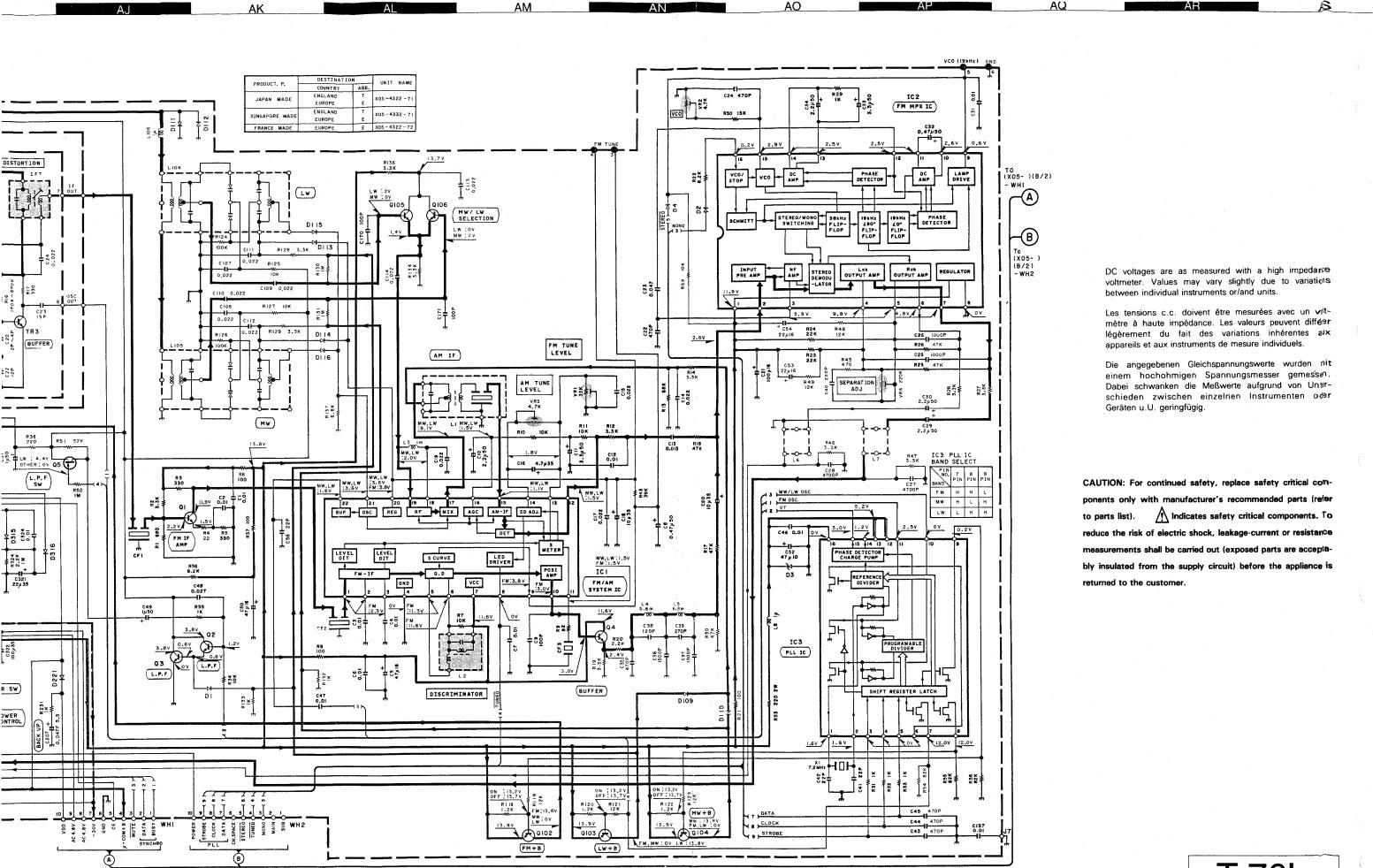
X07-3532-71

T-76  
ENWOOD

TUNER UNIT  
(X05-4322-71)(A/2) JAPAN MADE, FRANCE MADE  
(X05-4332-71)(A/2) SINGAPORE MADE

PRODUCT, P.	DESTINATION		UNIT NAME
	COUNTRY	ABC	
PAN MADE	ENGLAND	T	X05-4322-71
	EUROPE	E	
APORE MADE	ENGLAND	T	X05-4322-71
	EUROPE	E	
ANCE MADE	EUROPE	E	X05-4322-72

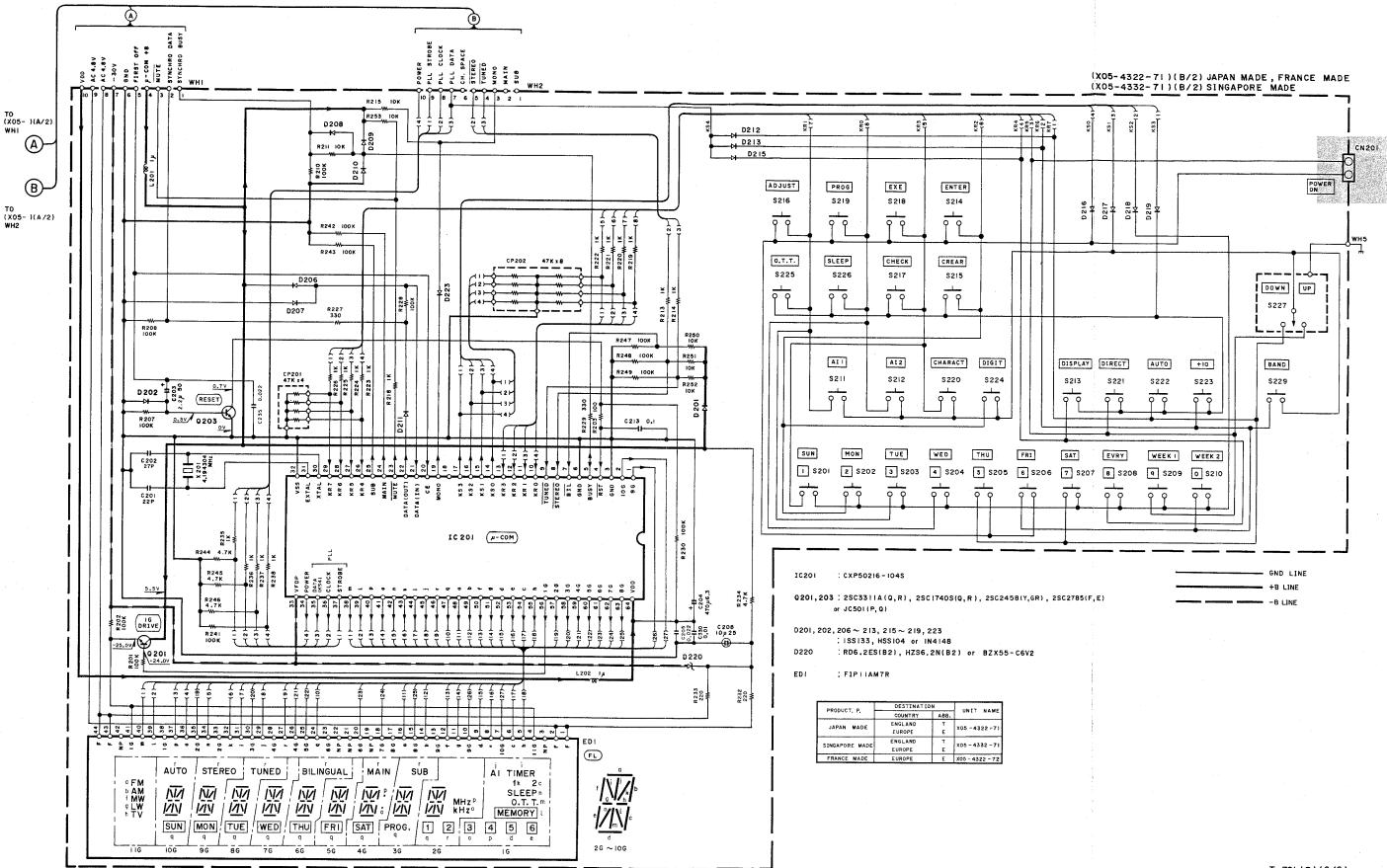




T-76L (E)(I/2)

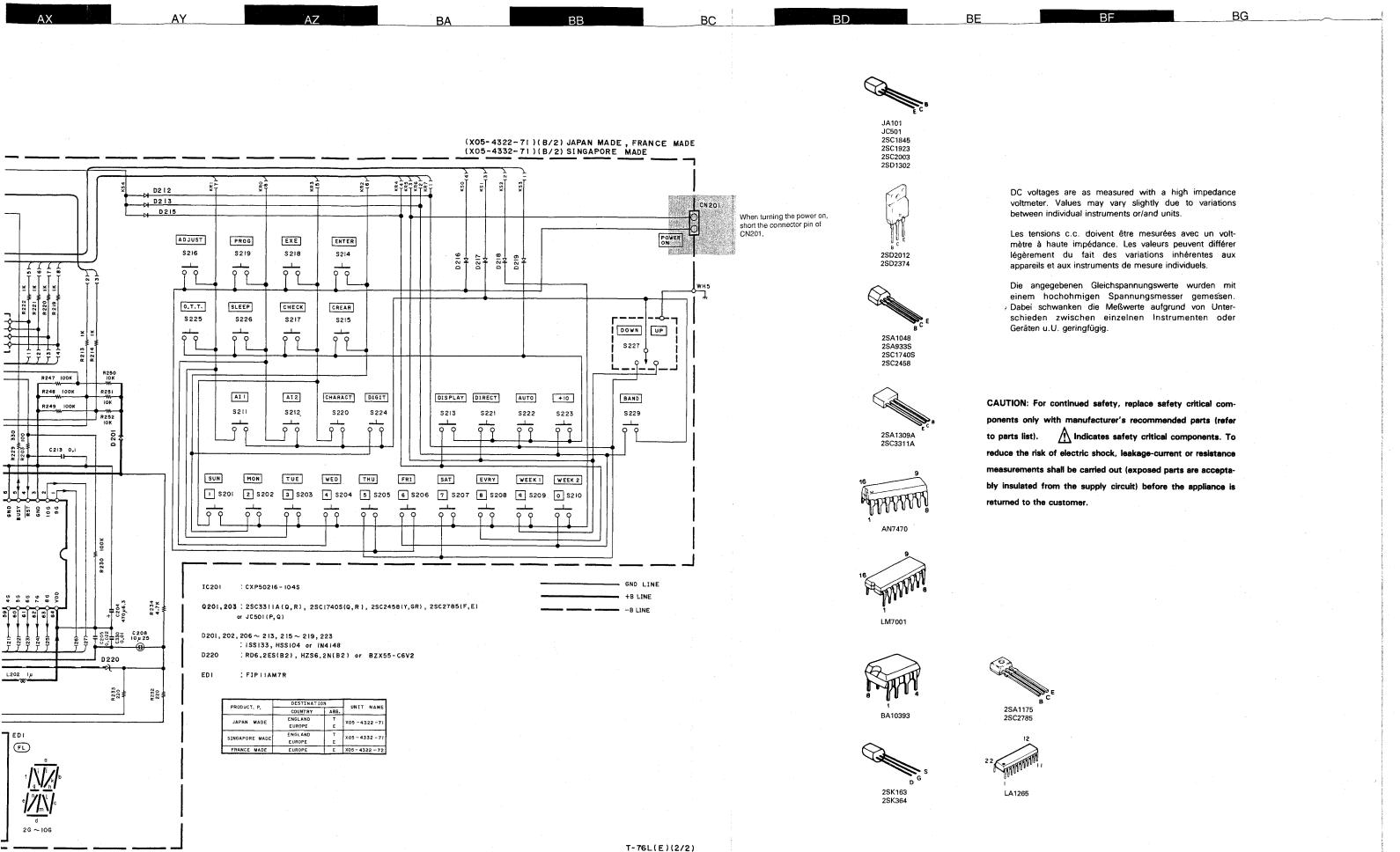
Y07-3532-71

**T-76L**  
**KENWOOD**



When turning the pawl, short the connector pin GN1201.

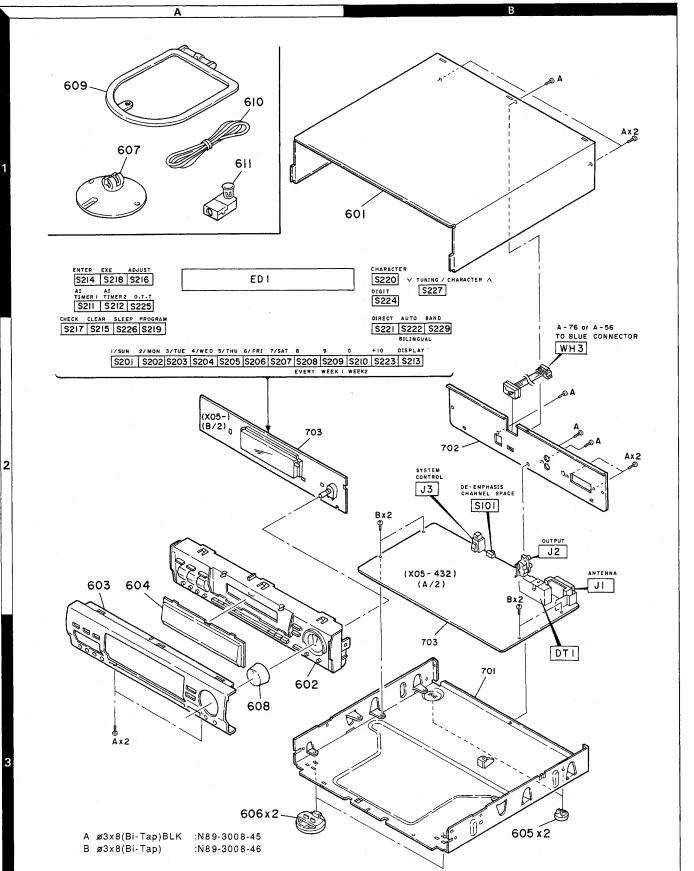
T-761-(E)(2/2)



T-76L(E)(2/2)

Y07-3532-71

**T-76L**  
**KENWOOD**



Parts with the exploded numbers larger than 700 are not supplied

## PARTS LIST





